

Intertidal Clam Sampling



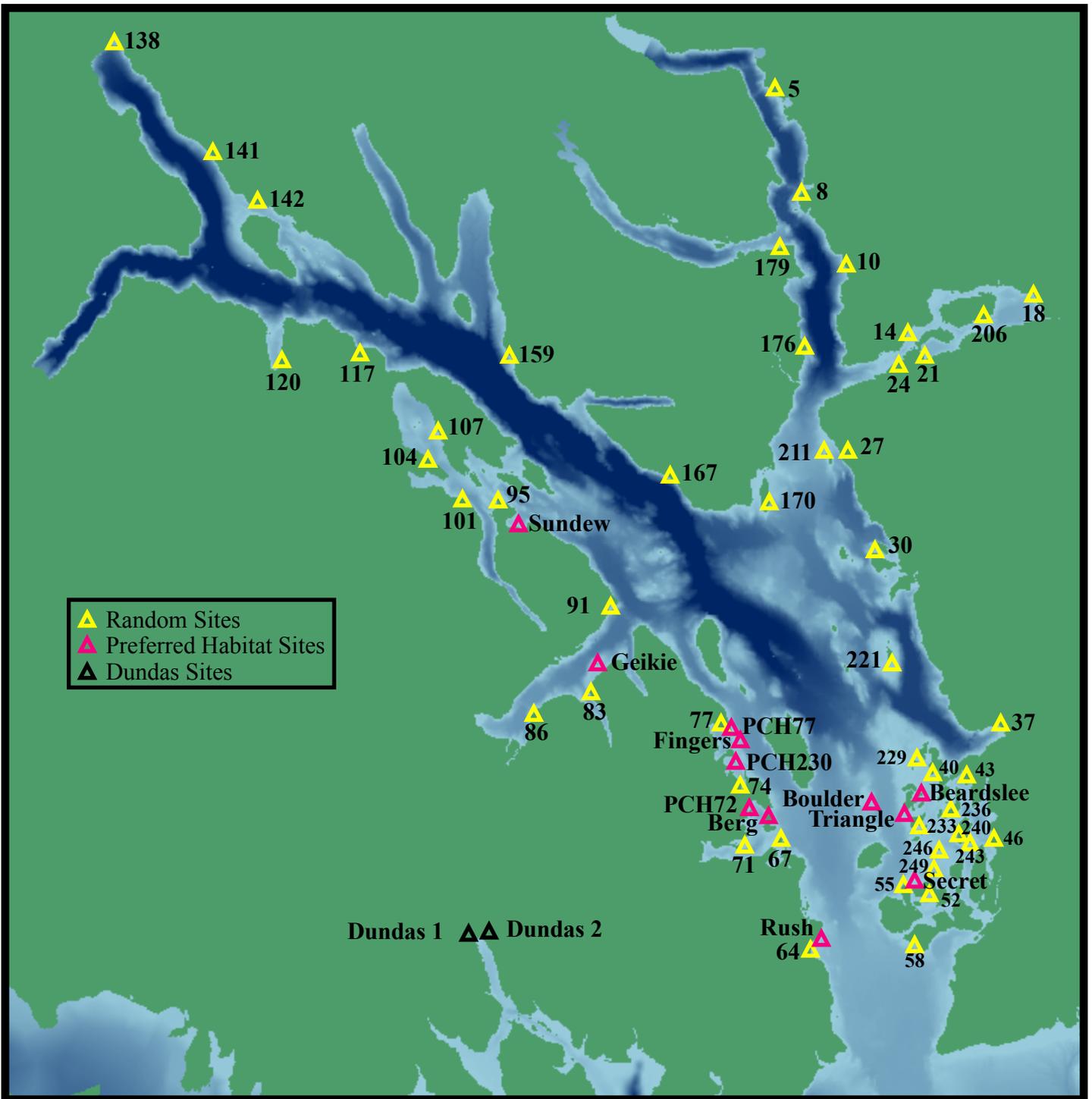


Figure 8. Map of Glacier Bay National Park and Preserve showing intertidal sampling sites. Yellow symbols represent sites chosen with a random start and systematic sampling thereafter. Pink symbols represent sites chosen for the likelihood of high clam abundance (e.g. shell litter or squirts observed). Black symbols represent two sites sampled as part of a baseline data set in response to ship grounding. The background map shows the bathymetry of Glacier Bay, lighter colors = shallower waters.

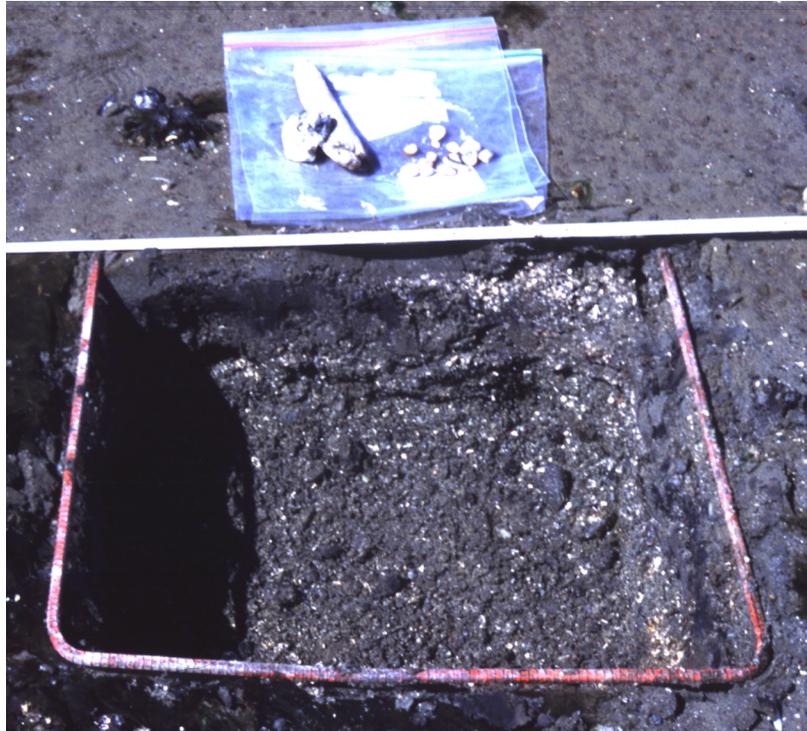


Figure 10. An excavated quadrat. Clams found in the sediments from this quadrat are on the ziploc bag behind the transect tape.

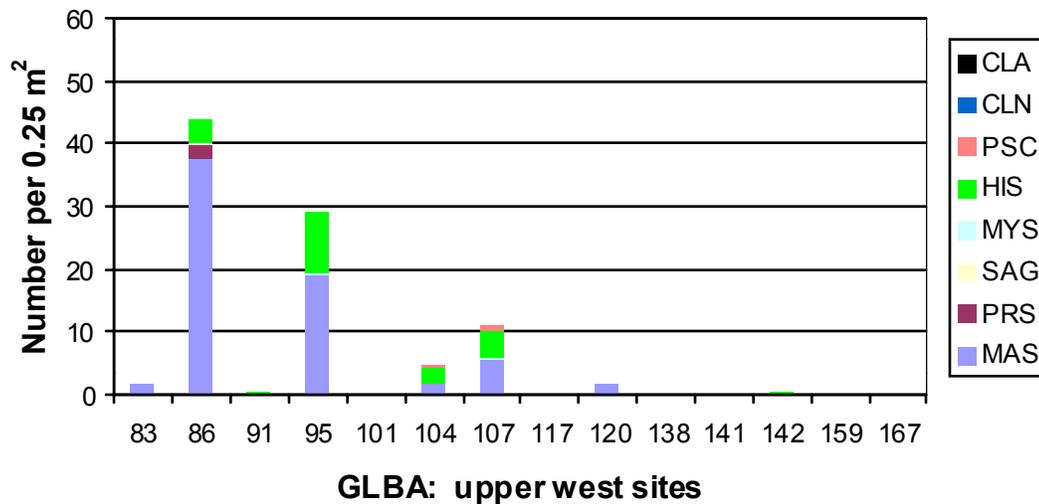
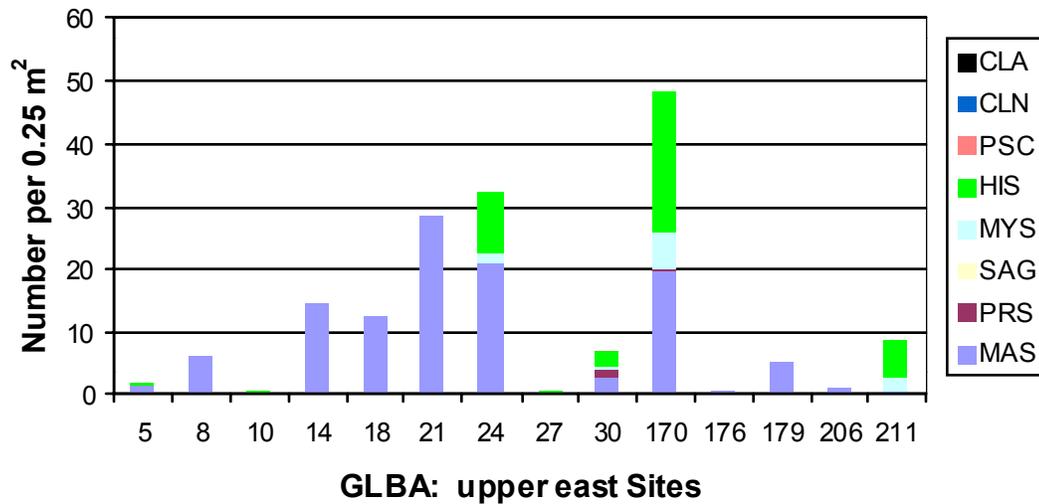
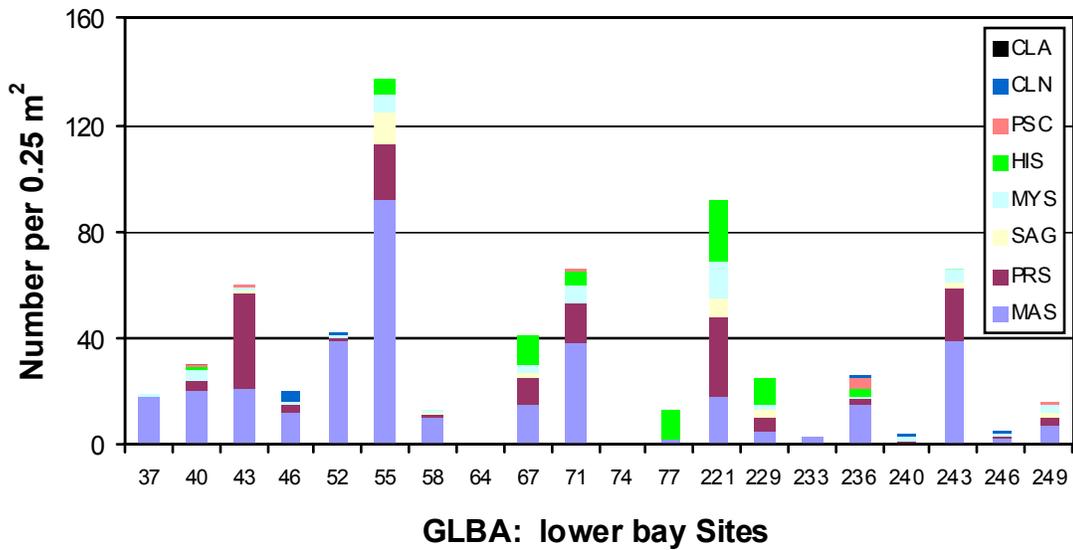


Figure 11a. Mean number of clams per 0.25 m² for randomly selected sites in Glacier Bay. Note the scale ranges from 0 - 160 clams per 0.25 m² at the lower bay sites while at the upper bay sites it ranges from 0 - 60 clams per 0.25 m². See Figure 8 for locations of the sites. Species abbreviation key: CLA = unknown and other clam species, CLN = *Clinocardium nuttallii*, PSC = *Pseudopythina compressa*, HIS = *Hiatella* species, MYS = *Mya* species, SAG = *Saxidomus gigantea*, PRS = *Protothaca staminea*, and MAS =

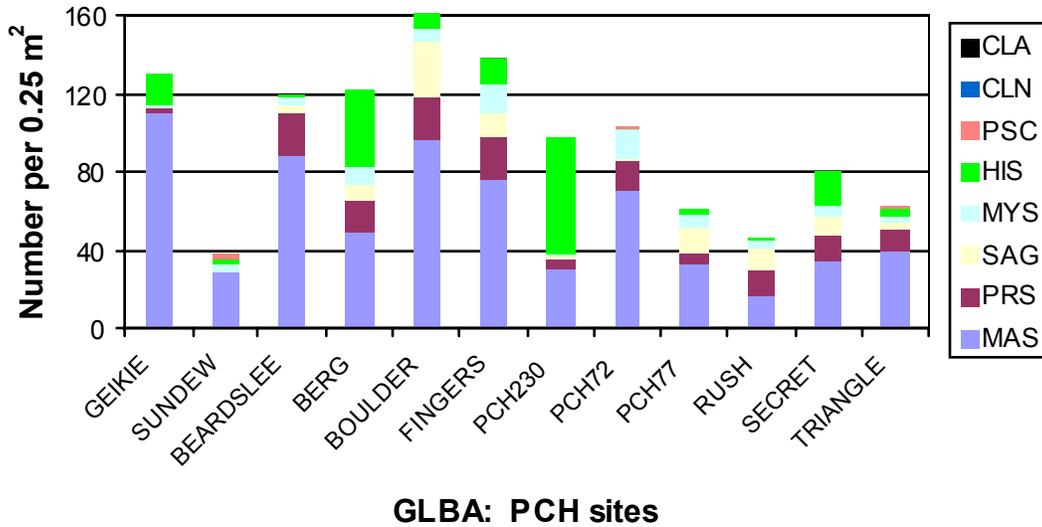


Figure 11b. Mean number of clams per 0.25 m² at preferred habitat (PCH) sites in Glacier Bay. See Figure 8 for locations of the sites. Species abbreviation key: CLA = unknown and other clam species, CLN = *Clinocardium nuttallii*, PSC = *Pseudopythina compressa*, HIS = *Hiatella* species, MYS = *Mya* species, SAG = *Saxidomus gigantea*, PRS = *Protothaca staminea*, and MAS = *Macoma* species.

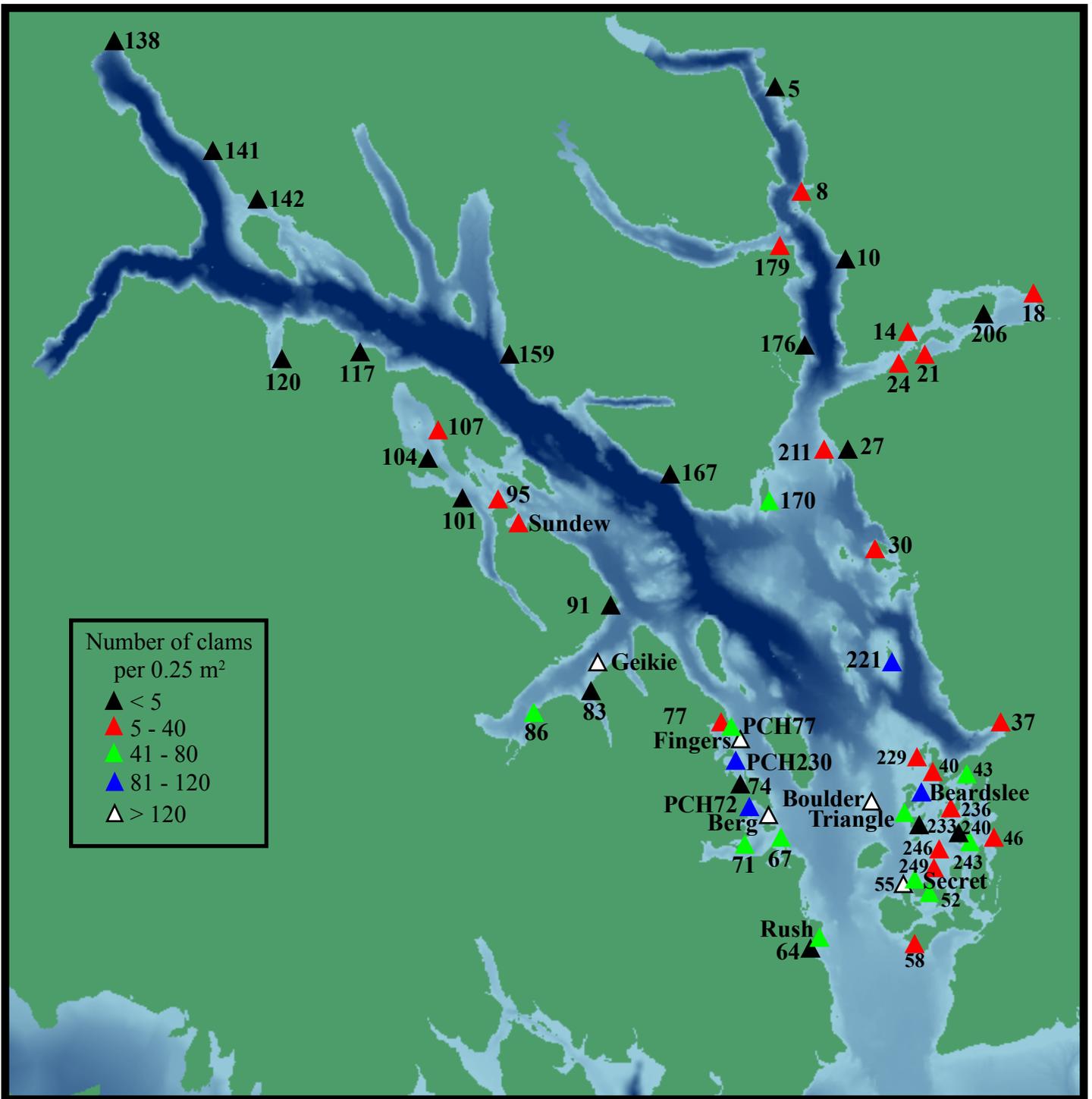


Figure 11c. Number of clams (all species combined) per 0.25 m² at all sites in GLBA. This figure summarizes data found in Figures 11a and 11b.

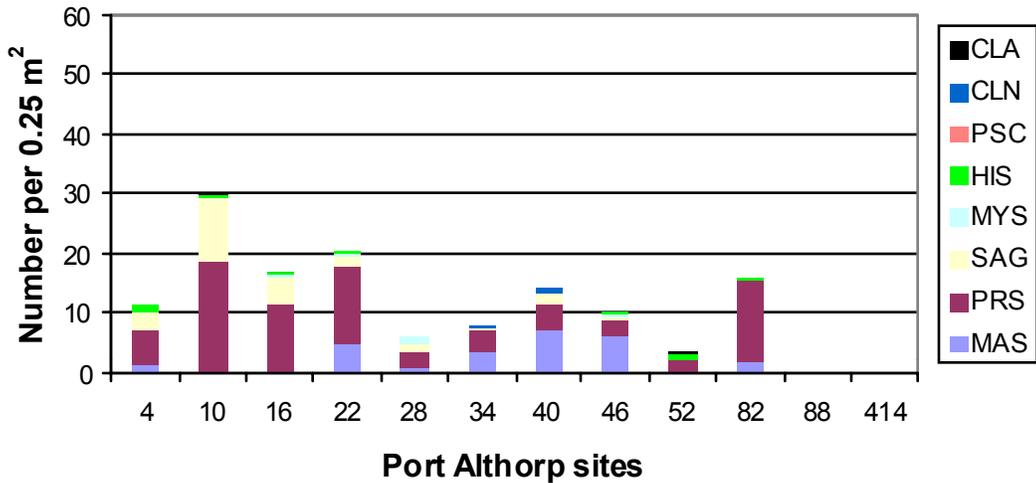
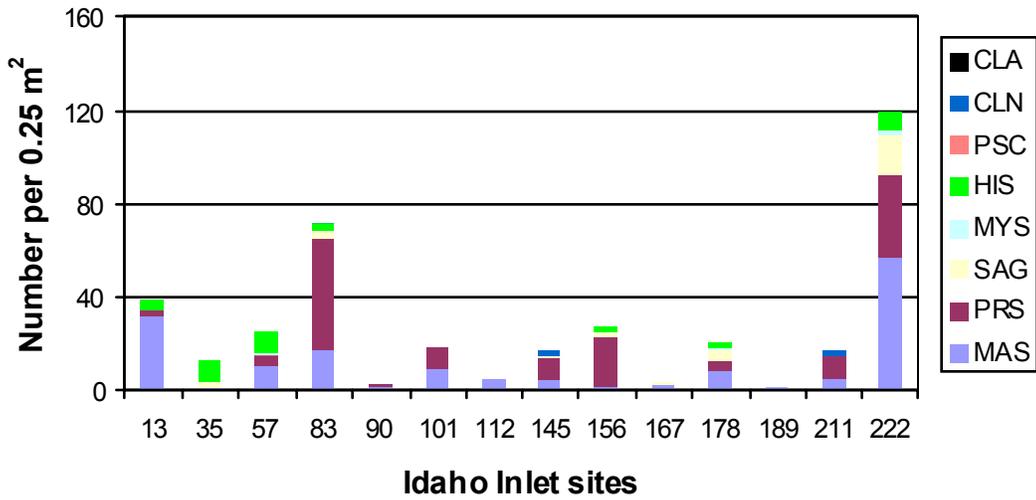
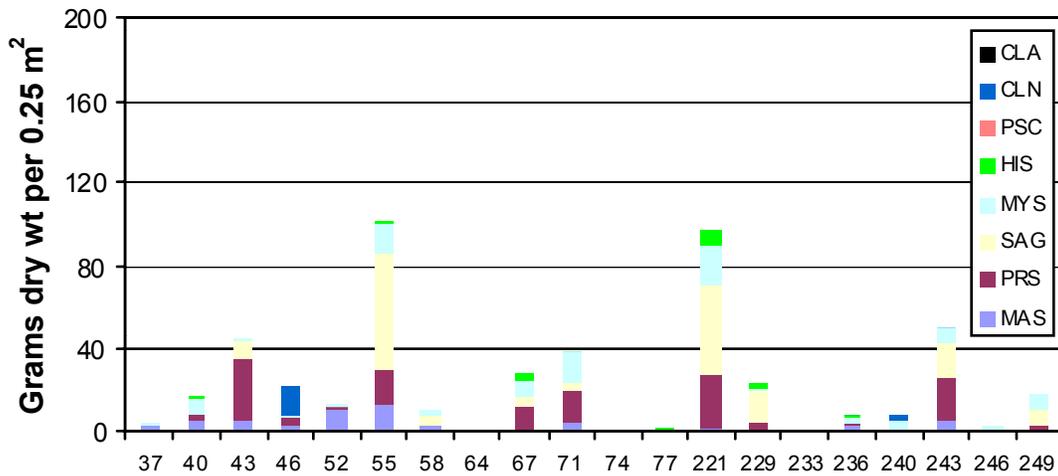
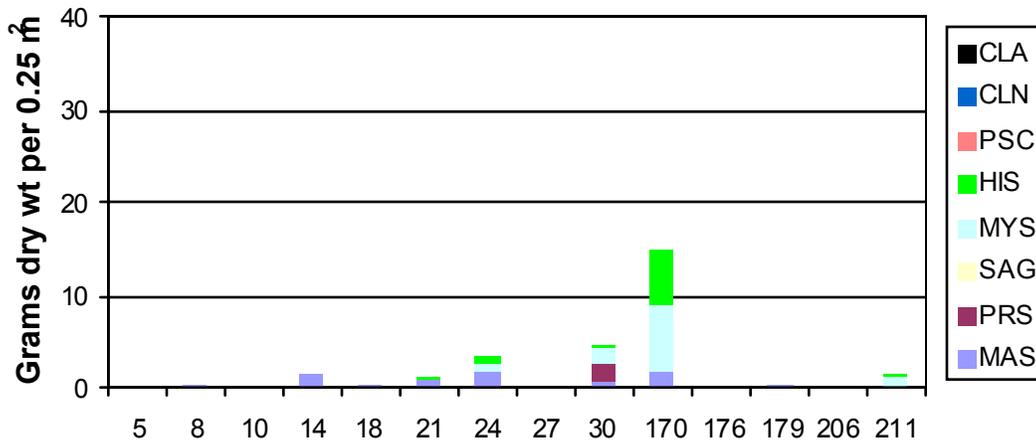


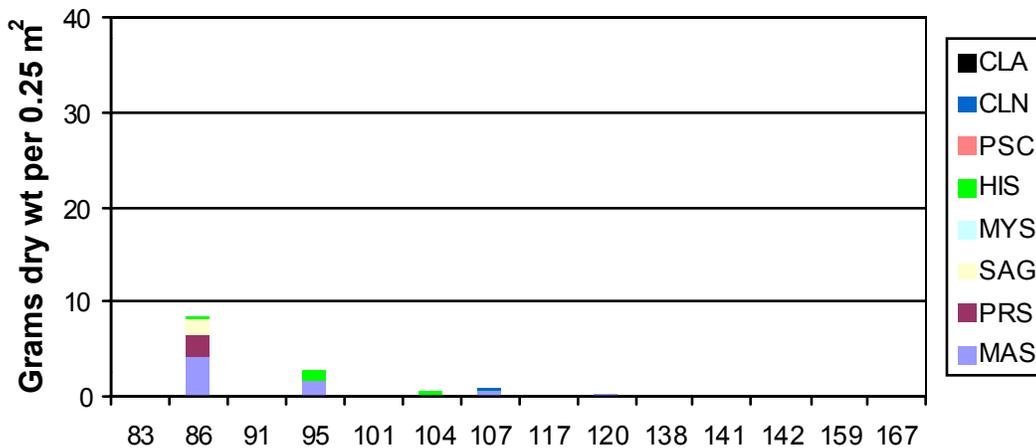
Figure 12a. Mean number of clams per 0.25 m² at sites in Idaho Inlet and Port Althorp. Note the scale ranges from 0 to 160 clams per 0.25 m² in Idaho Inlet while it ranges from 0 to 60 in Port Althorp. See Figure 9 for locations of the sites. Species abbreviation key: CLA = unknown and other clam species, CLN = *Clinocardium nuttallii*, PSC = *Pseudopythina compressa*, HIS = *Hiatella* species, MYS = *Mya* species, SAG = *Saxidomus gigantea*, PRS = *Protothaca staminea*, and MAS = *Macoma* species.



GLBA: lower bay sites



GLBA: upper east sites



GLBA: upper west sites

Figure 13a. Mean biomass in grams dry weight per 0.25 m² at randomly selected sites in Glacier Bay. Note the scales are different on the 3 figures: The scale on the GLBA upper figures ranges from 0 to 40 grams per 0.25 m² while the scale on the GLBA lower figure ranges from 0 to 200 grams per 0.25 m². See Figure 8 for site locations. Species abbreviation key: CLA = unknown and other clam species, CLN = *Clinocardium nuttallii*, PSC = *Pseudopythina compressa*, HIS = *Hiatella* species, MYS = *Mya* species, SAG = *Saxidomus gigantea*, PRS = *Protothaca staminea*, and MAS = *Macoma* species.

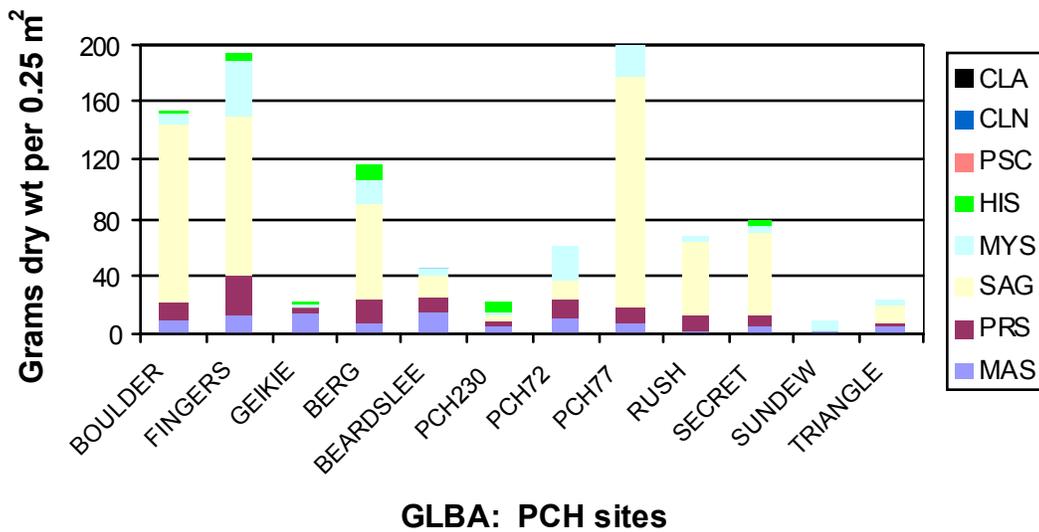


Figure 13b. Mean biomass per 0.25 m² at preferred habitat (PCH) sites in Glacier Bay. Note the scale on this figure ranges from 0 to 200 grams per 0.25 m². See Figure 8 for site locations. Species abbreviation key: CLA = unknown and other clam species, CLN = *Clinocardium nuttallii*, PSC = *Pseudopythina compressa*, HIS = *Hiatella* species, MYS = *Mya* species, SAG = *Saxidomus gigantea*, PRS = *Protothaca staminea*, and MAS = *Macoma* species.

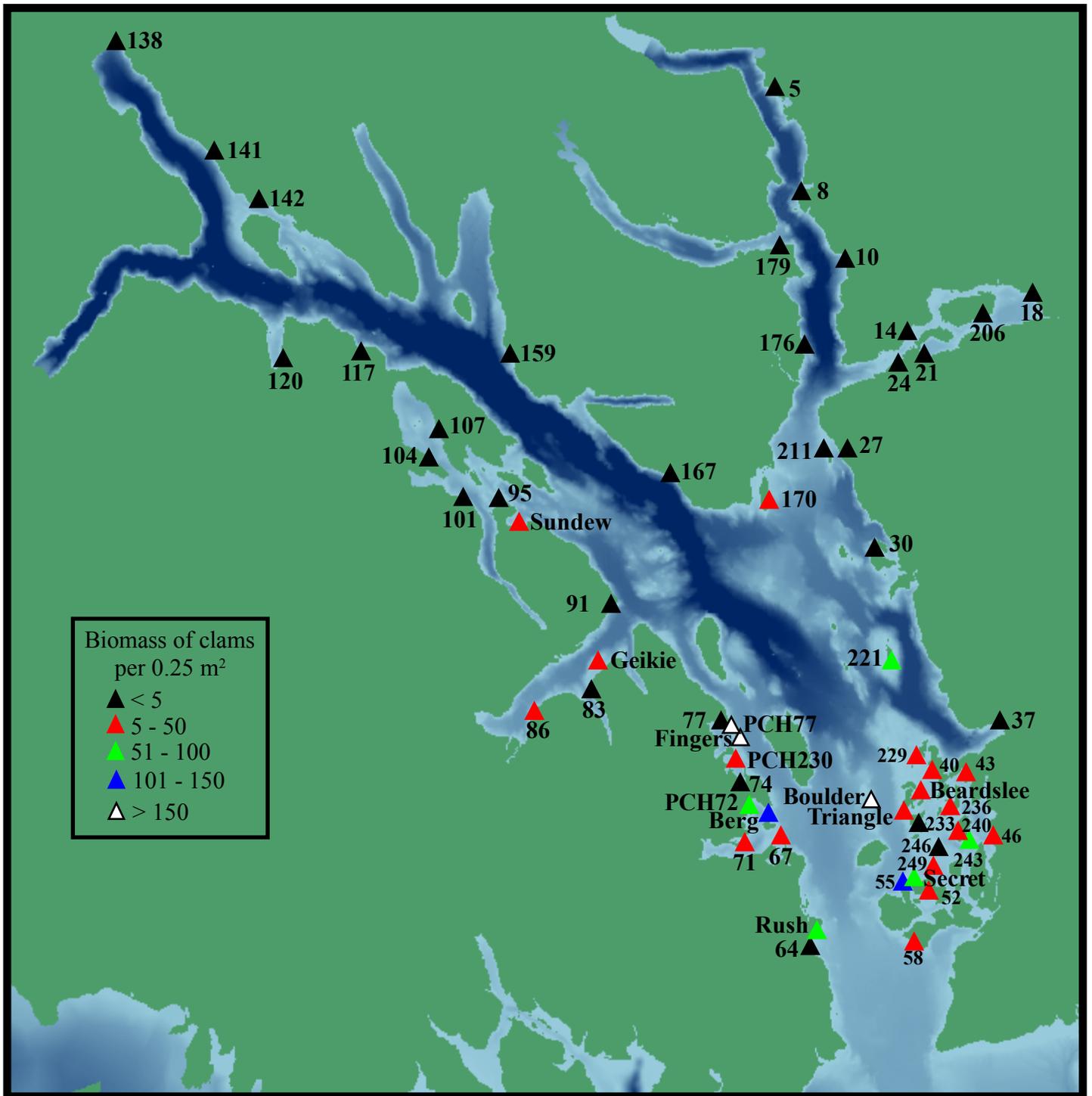


Figure 13c. Biomass (grams dry weight) of clams per 0.25 m² at sites in GLBA. This figure summarizes data from Figures 13a and 13b.

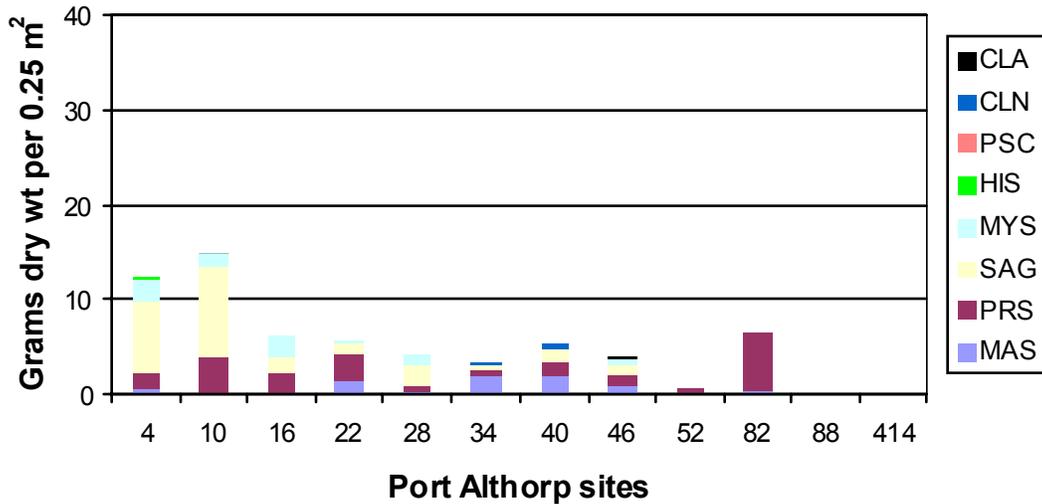
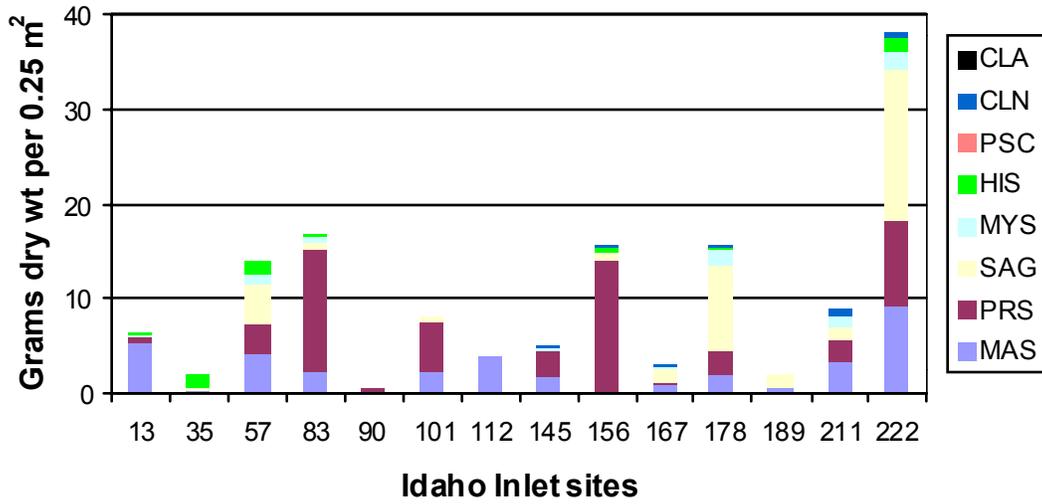


Figure 14a. Mean biomass in grams dry weight per 0.25 m² at sites in Idaho Inlet and Port Althorp. See Figure 9 for site locations. Species abbreviation key: CLA = unknown and other clam species, CLN = *Clinocardium nuttallii*, PSC = *Pseudopythina compressa*, HIS = *Hiatella* species, MYS = *Mya* species, SAG = *Saxidomus gigantea*, PRS = *Protothaca staminea*, and MAS = *Macoma* species.

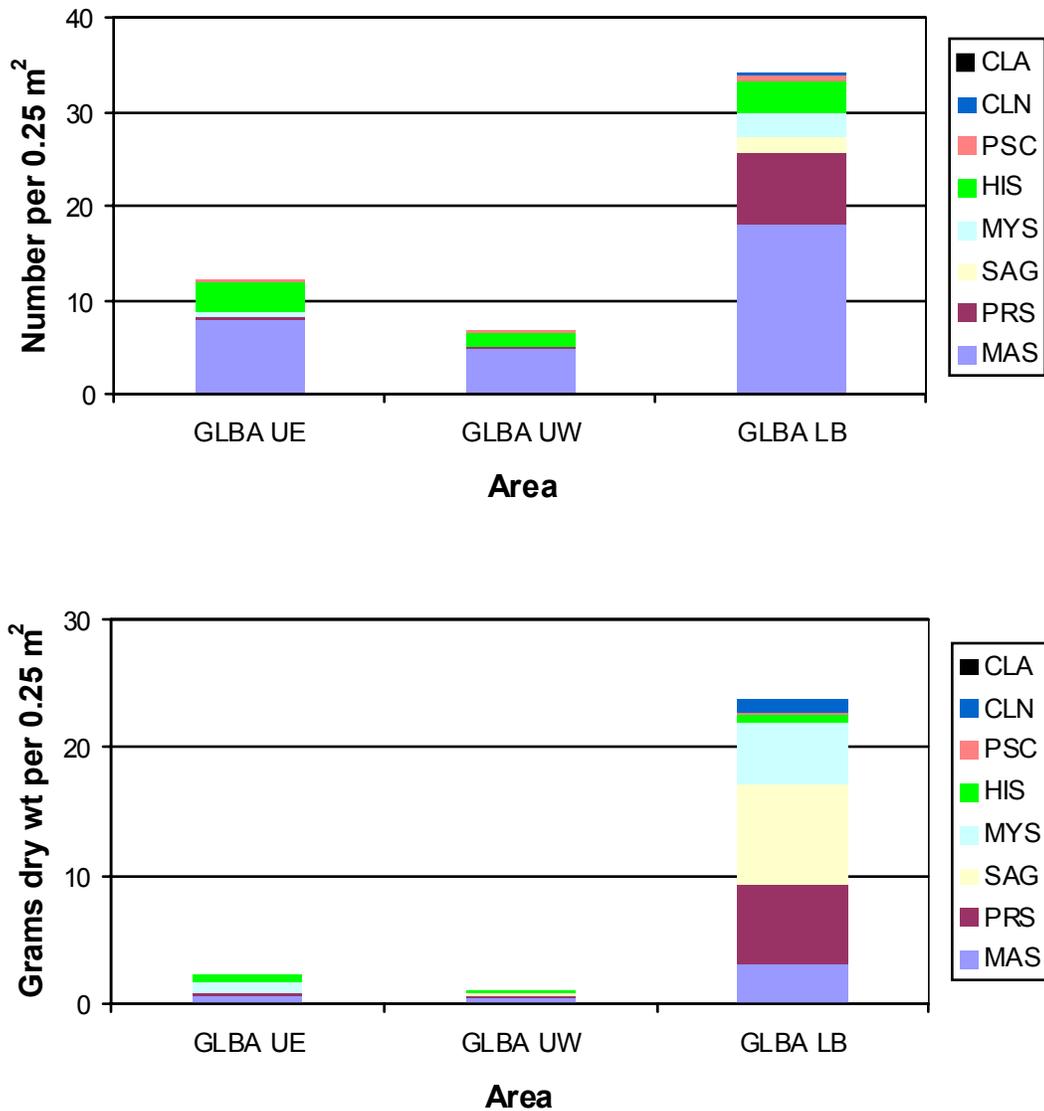


Figure 15a. Intertidal clam density and biomass at sites within Glacier Bay, subdivided into upper east (UE), upper west (UW), and lower bay (LB). See Figure 1 for the locations of the study areas, including the divisions in Glacier Bay. Figure 15b shows this same data lumped for all Glacier Bay randomly selected sites, for comparison to Idaho Inlet and Port Althorp. Species abbreviation key: CLA = unknown and other clam species, CLN = *Clinocardium nuttallii*, PSC = *Pseudopythina compressa*, HIS = *Hiatella* species, MYS = *Mya* species, SAG = *Saxidomus gigantea*, PRS = *Protothaca staminea*, and MAS =

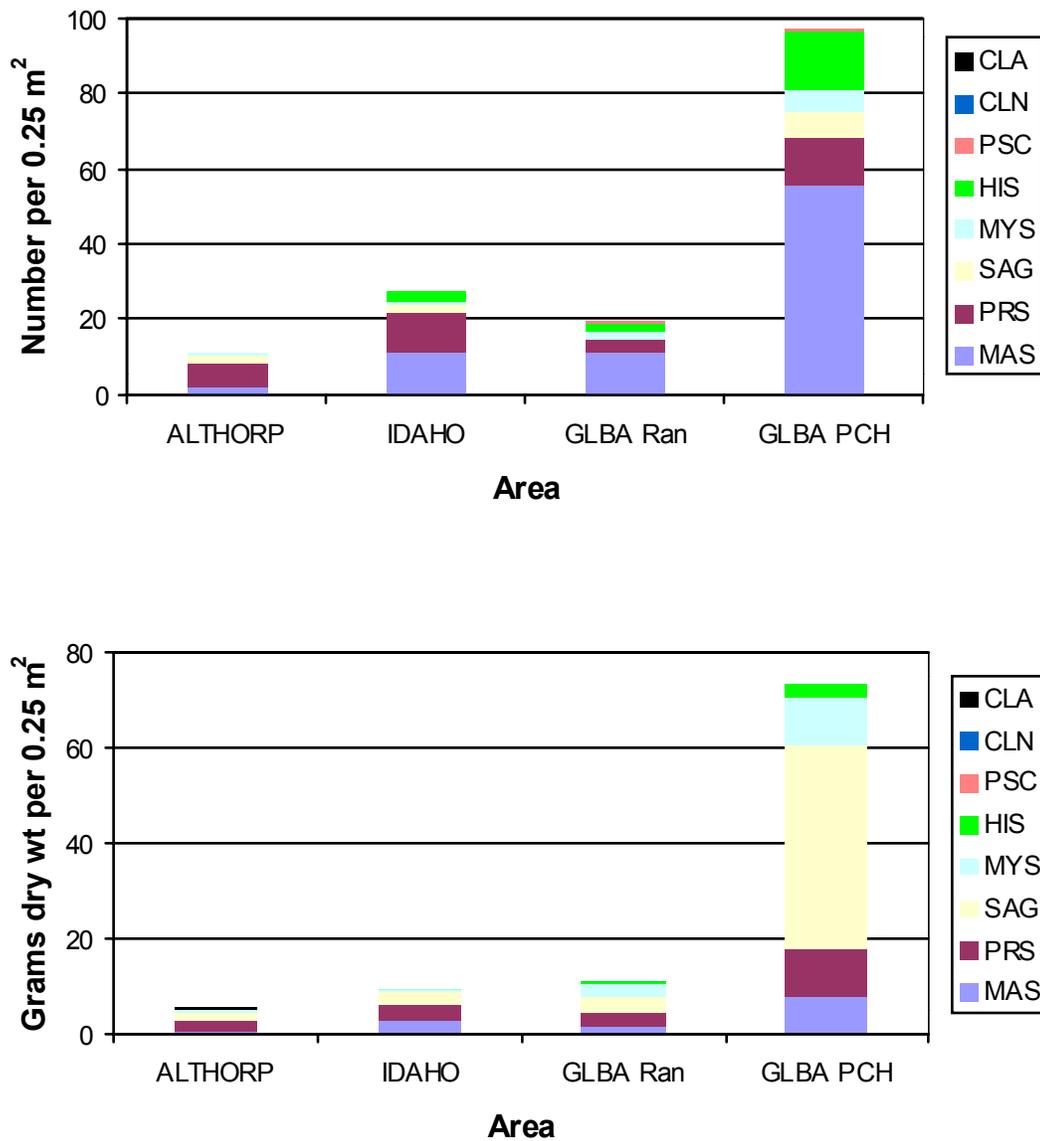


Figure 15b. Top graph shows intertidal clam density in our 4 study areas: Port Althorp, Idaho Inlet, Glacier Bay-randomly selected sites (GLBA-Ran), and Glacier Bay-preferred clam habitat sites (GLBA-PCH). Lower graph shows intertidal clam biomass for the same areas. Note that MAS (*Macoma* species) are the most abundant clam in both GLBA areas, yet account for very little of the actual biomass of intertidal clams. See Figure 1 for locations of study areas. Species abbreviation key: CLA = unknown and other clam species, CLN = *Clinocardium nuttallii*, PSC = *Pseudopythina compressa*, HIS = *Hiatella* species, MYS = *Mya* species, SAG = *Saxidomus gigantea*, PRS = *Protothaca staminea*, and MAS =

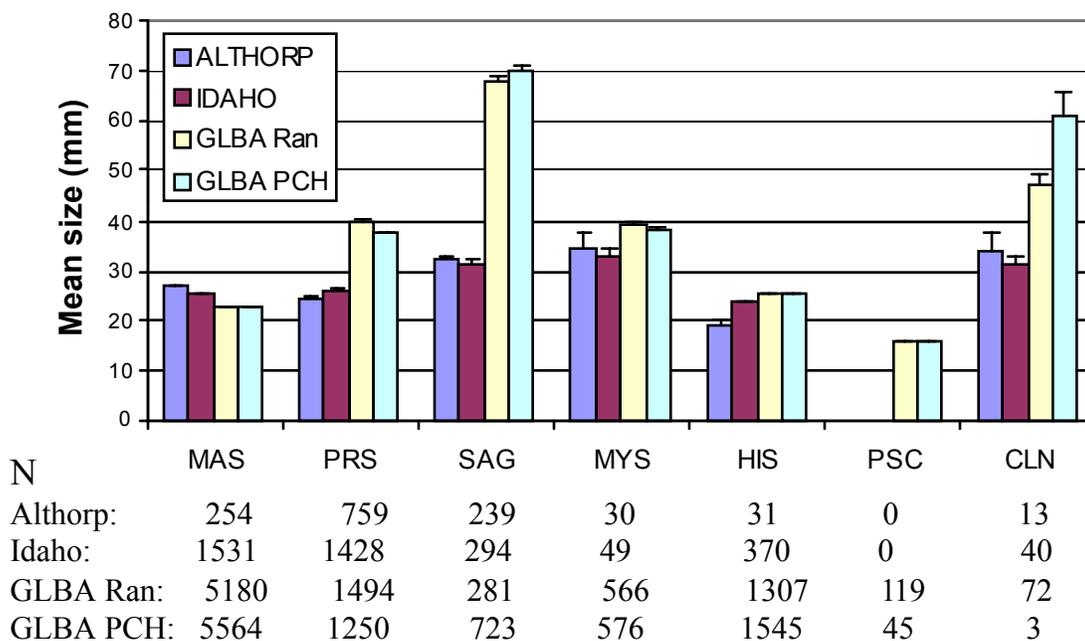
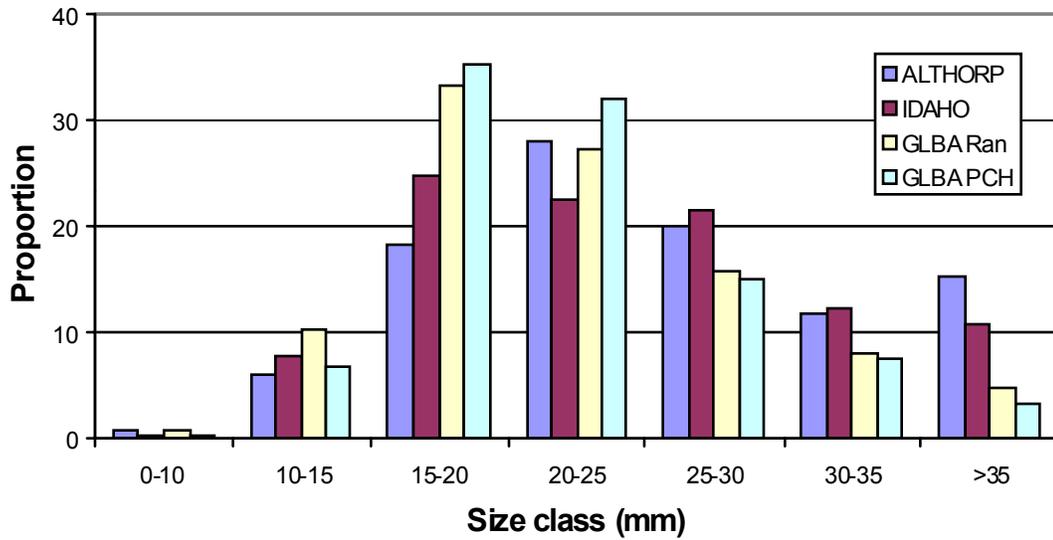
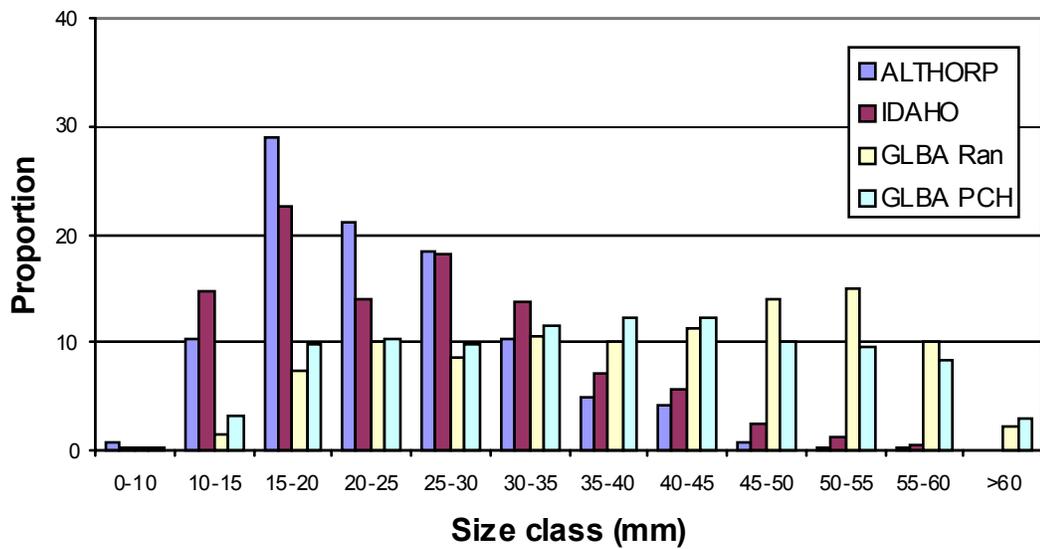


Figure 16. Mean size in mm (+ 1 SD) of clam species in 4 study areas. See Figure 1 for locations of study areas. Species abbreviation key: CLA = unknown and other clam species, CLN = *Clinocardium nuttallii*, PSC = *Pseudopythina compressa*, HIS = *Hiatella* species, MYS = *Mya* species, SAG = *Saxidomus gigantea*, PRS = *Protothaca staminea*, and MAS = *Macoma* species.

Macoma
species
(MAS)



Protothaca
staminea
(PRS)



Saxidomus
gigantea
(SAG)

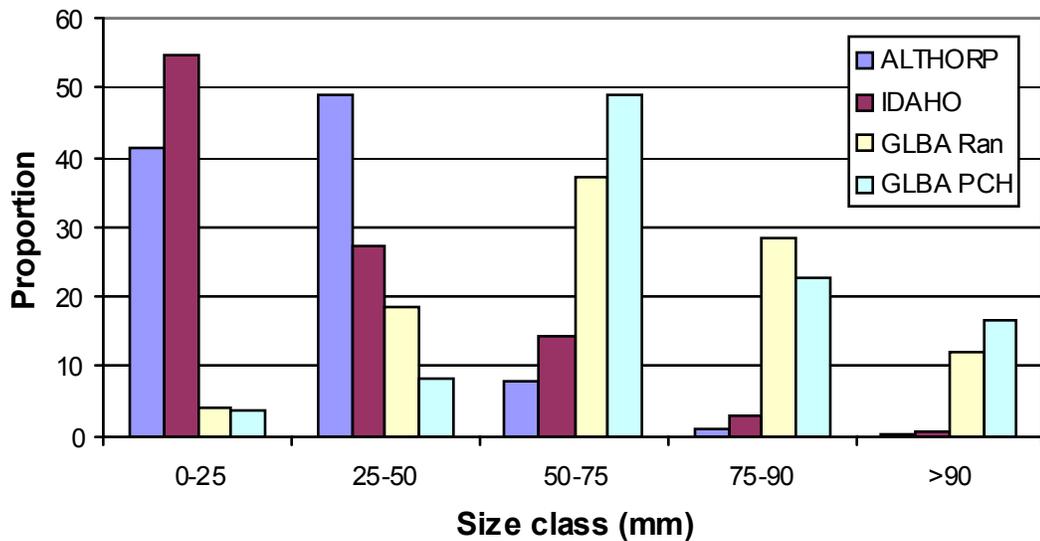


Figure 17. Size class distributions for *Macoma* species, *Protothaca staminea*, and *Saxidomus gigantea* at 4 study areas. See Figure 1 for locations of study areas. Note that the graphs use different scales, this is for comparisons with existing data in other areas.